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**(54) ELEMENT FOR PRODUCING OPTICAL SYSTEM  
WITH LASER**

**(57) Abstract:**

**PURPOSE:** To ensure a stable refractive index and stable transmissivity to high output laser light in a short wavelength region over a long time and to reduce fluorescence by making the structure of high purity quartz glass practically free from oxygen defects.

**CONSTITUTION:** High purity quartz glass

having  $\approx 300$ ppm OH group content,  $\leq 0.1$ ppm alkali metal content,  $\leq 0.1$ ppm alkaline earth metal content,  $\leq 0.01$ ppm transition metal content and  $\leq 0.1$ ppm Al content is formed by a soot process or a plasma process with gaseous  $\text{SiCl}_4$ , oxygen and hydrogen. The quartz glass is heat treated in an oxidizing and/or reducing atmosphere to make the structure of the glass practically free from oxygen defects.

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